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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,473	05/26/2000	Charles Philippe Tresser	YO999-523	9994

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EXAMINER

LEE, TOMMY D

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 01/16/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/578,473

Applicant(s)

TRESSER, CHARLES PHILIPPE

Examiner

Thomas D. Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 15 and 46 is/are allowed.
- 6) ☒ Claim(s) 4-14, 16-21, 23-43 and 45 is/are rejected.
- 7) ☒ Claim(s) 22 and 44 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4-14, 16-20, 27-37 and 39-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Certain terms in the above claims are not defined. Regarding claim 4, on line 2, the terms "Himage" and "Vimage" are not defined either in this claim or base claim 1, from which claim 4 depends (also note claims 18, 27 and 41 regarding such terms). Regarding claim 7, on line 2, the term M_k , as well as the function " $V(l, j, M_k)$ " are not defined either in this claim or any of claims 1 or 4-6, from which claim 7 depends (also note claim 30). Regarding claim 16, on line 2, the function " $\text{Max}(k)$ " is not defined either in this claim or either one of claims 1 and 15, from which claim 16 depends (also note claim 39). The meanings of such terms and functions are unclear.

Furthermore, with regard to claims 7 and 30, on line 3 of each claim, computation is performed for "all weighted averages $W(l, j, l_k)$ not computed in earlier iterations." However, a step for computing weighted averages in earlier iterations is not indicated in any of the claims from which these claims depend.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 21, 23-26, 38 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,594,809 (Kopec et al.).

Regarding claims 21 and 45, Kopec et al. teach a method of printing, comprising: forming a matrix of pixels (noting Fig. 27, template of pixels, each with a pixel position, is formed prior to step 452, where each pixel is given a "pixel score"); determining an order of printing of said pixels, said determining including finding a weight of said pixels and printing a pixel having a highest weight (pixel score computed for each unassigned template pixel at step 456, template pixel with highest score is selected and assigned a black pixel color value at step 470); and reordering the remaining pixels and printing a pixel having the greatest weight of the remaining pixels until all pixels have been printed (process returns to step 456, where pixel scores are again computed for remaining unassigned template pixels). Read column 54, lines 20-38. The above method is written as a program of machine-readable instructions in Table 3 (column 53, lines 45-57), thereby enabling execution by a digital processing apparatus.

Claim 23 is similar to above-rejected claim 21, but further recites a step of forming a sequence of matrices P_k with entries 0 or 1 at some entry in some P_k represents that this pixel will be printed at stage k ; and constructing as sequences of matrices I_k with entries in $[0,1]$, so that $I_0 = I$. These correspond to the construction of templates from sample image regions, which is taught by Kopec et al. (column 53, line 30 – column 54, line 19).

Regarding claims 24-26 and 38, Kopec et al. teach a system for printing, comprising: means for forming a matrix of pixels (noting Fig. 27, template of pixels, each with a pixel position, is formed prior to step 452, where each pixel is given a "pixel score"); means for determining an order of printing of said pixels, said determining including finding a weight of said pixels and printing a pixel having a highest weight (pixel score computed for each unassigned template pixel at step 456, template pixel with highest score is selected and assigned a black pixel color value at step 470); and means for reordering the remaining pixels and printing a pixel having the greatest weight of the remaining pixels until all pixels have been printed (process returns to step 456, where pixel scores are again computed for remaining unassigned template pixels). With each printing of a pixel, an order of printing of remaining pixels is redefined, said reordering means reorders the pixels to be printed with each iteration (at step 456). A total number of black dots being printed is variable (inherently depending on the contents of each template).

Allowable Subject Matter

5. Claims 1-3, 15, and 46 are allowed.
6. Claims 22 and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. Claims 4-14, 16-20, 27-37 and 39-43 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to teach or suggest the steps of “determining, when considering all pixels in I_k for all successive values of k , a next pixel having a largest weight indicating that said next pixel is to be printed next, so that P_{k+1} differs from P_k by a zero at said next pixel in P_k being replaced by a 1 at the same position in P_{k+1} ” as recited in base claims 1 and 46, or “wherein the pixels are printed in turn based on the darkness of the local image being printed” as recited in claims 22 and 44. The prior art does not appear to teach or suggest the following limitations, as best understood by the examiner: “wherein an original image is denoted as said matrix $I = \{I(l,j)\}$, where $1 \leq l \leq H_{image}$ and $1 \leq j \leq V_{image}$, and wherein each element $I(l,j)$ of I is a real number between 0 and 1 where 0 represents “white”, 1 represents “black” and intermediate values represent levels of gray” as recited in claim 27, or “a multi-tone printer for printing, such that a lightest grey darker than $Max(k)$ is printed, and $I_k(l,j) = I(l,j) - 1$ is replaced by $I_k(l,j) = I(l,j)$ which represents a multibit grey level being printed” as recited in claim 39, or “means for encoding the set of pixels to be printed after half-toning, in the matrix $P = \{P(l,j)\}$, where $1 \leq l \leq H_{image}$ and $1 \leq j \leq V_{image}$, wherein each element $P(l,j)$ of P has a value of either 0 or 1, where “0” represents “white” and “1” represents “black” as recited in claim 41.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,587,811 (Liguori) discloses a method using spot functions to rank pixels following one or more design rules.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (703) 305-4870. The examiner can normally be reached on Monday-Friday (7:30-5:00), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (703) 308-7452. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



Thomas D. Lee
Primary Examiner
Art Unit 2624

tdl
January 9, 2004